5.
Test case 1
input:
Outgoing Server: mail.sutd.edu.sg
Mail Server: imap.sutd.edu.sg
Email address: 1003475@mymail.sutd.edu.sg
Subject: "Hi"

output:
Delivery pass

Test case 2
input:
Outgoing Server: null
Mail Server: imap.sutd.edu.sg
Email address: 1003475@mymail.sutd.edu.sg
Subject: "Hi"

output:
Delivery fail

Test case 3
input:
Outgoing Server: mail.sutd.edu.sg
Mail Server: null
Email address: 1003475@mymail.sutd.edu.sg
Subject: "Hi"

output:
Delivery fail

Test case 4
input:
Outgoing Server: mail.sutd.edu.sg
Mail Server: imap.sutd.edu.sg
Email address: null
Subject: "Hi"

output:
Delivery fail

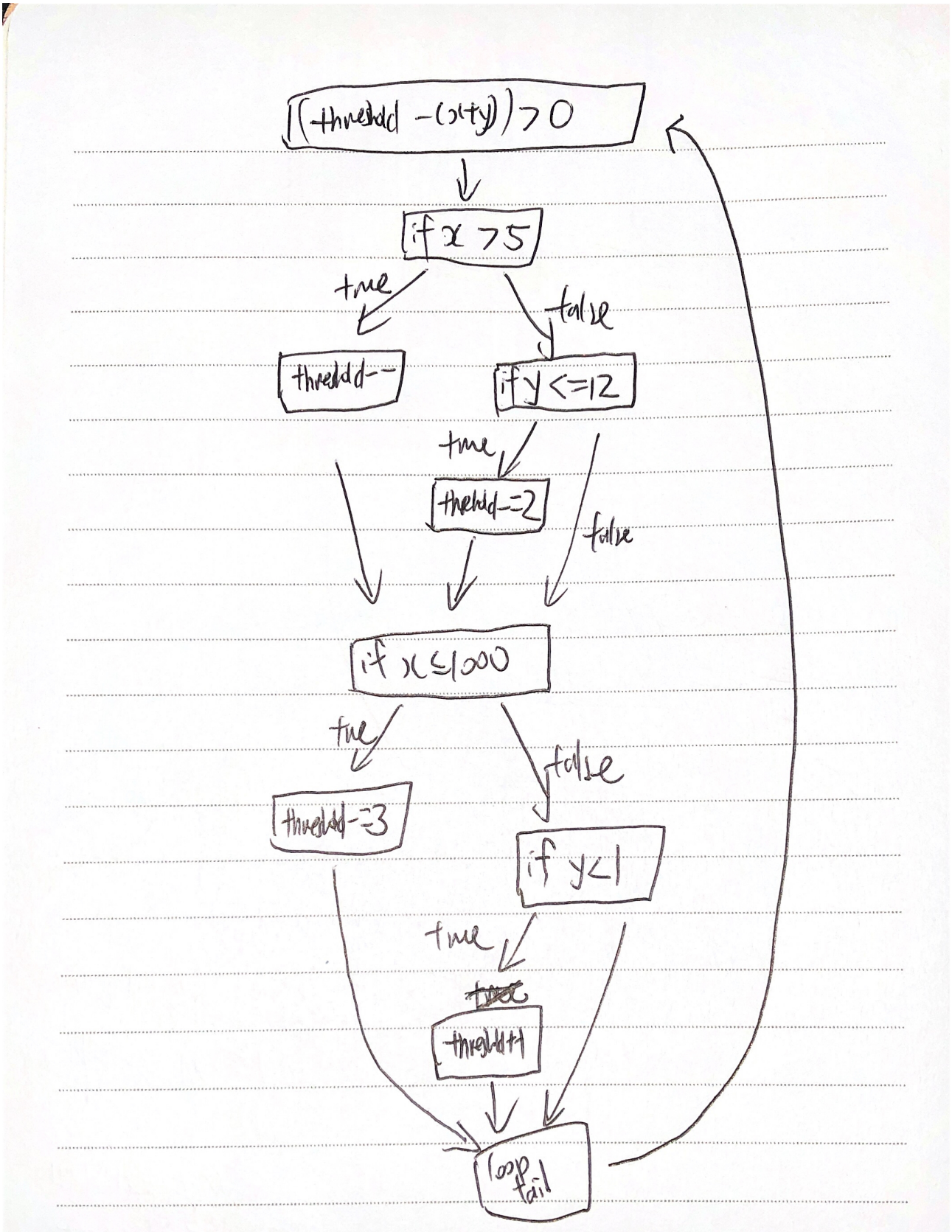
Test case 5
input:
Outgoing Server: mail.sutd.edu.sg
Mail Server: imap.sutd.edu.sg
Email address: 1003475@mymail.sutd.edu.sg
Subject: (text string, size 1.1 MB)

output:
Delivery fail

Test case 6
input:
Outgoing Server: mail.sutd.edu.sg
Mail Server: imap.sutd.edu.sg
Email address: 1003475
Subject: "Hi"

output:
Delivery fail

6.


(threshold -(x+y))>0
if x>5
true
false
threshold--
if y<=12
true
threshold-=2
false
if x<=1000
true
false
threshold-=3
if y<1
true
threshold+1
loop tail

7.
2 cases
case 1:
x: 4
y: 12

```java
public class Disk {
    private int x;  x: 4
    private int y;  y: 12

    Disk(int x, int y) {
        this.x = x;
        this.y = y;
    }

    public void manipulate () {
        int threshold = 1000;  threshold: 998
        while ((threshold - (x + y)) > 0) {
            if (x > 5) {
                threshold = threshold - 1;
            }
            else if (y <= 12) {  y: 12
                threshold = threshold - 2;  threshold: 998
            }
            if (x <= 1000) {  x: 4
                threshold = threshold - 3;
            }
            else if (y < 1) {
                threshold = threshold + 1;
```

case 2:
x:2000
y: -2000

```java
public class Disk {
    private int x;  x: 2000
    private int y;  y: -2000

    Disk(int x, int y) {
        this.x = x;
        this.y = y;
    }

    public void manipulate () {
        int threshold = 1000;  threshold: 999
        while ((threshold - (x + y)) > 0) {
            if (x > 5) {
                threshold = threshold - 1;
            }
            else if (y <= 12) {
                threshold = threshold - 2;
            }
            if (x <= 1000) {  x: 2000
                threshold = threshold - 3;  threshold: 999
            }
            else if (y < 1) {  y: -2000
                threshold = threshold + 1;
            }
        }
    }
```

8.
same as statement coverage, as each statement resides in every branch.

9.
path1: x+y > threshold. does not enter while loop
path 2, 3, 4, 5: enter each if/else if loop only once
path 6, 7, 8, 9: enter either first if/else if, and second if/else if
total 9 paths

10.
yes, the test cases satisfy condition coverage since each branch is executed, it implies true/false cases are all accounted for.

11.
x = 2000, y = -2000
will threshold++, then threshold--
stuck in infinite loop.